

# Claims

- [c1] A method for improving the signal to noise ratio in a multicarrier communication system, the method comprising:  
receiving a plurality of frequency domain data signals;  
accumulating the plurality of signal data on a predetermined number of useful subcarriers;  
averaging the accumulated signal data; and  
substituting the averaged accumulated data for the received frequency domain data signals to improve the signal to noise ratio.
- [c2] The method of claim 1 further comprising compensating for channel distortion using a per-tone frequency domain equalizer.
- [c3] The method of claim 1 further comprising initializing a link.
- [c4] The method of claim 1 further comprising training a receiver.
- [c5] The method of claim 1 further comprising generating a profile of constellation size for at least one of the plurality of frequency domain data signals.

- [c6] A method for improving the signal to noise ratio in a multicarrier communication system, the method comprising:
- obtaining channel attenuation and thermal noise level from a plurality of subcarriers;
  - determining the signal-to-noise ratio for each of the plurality of subcarriers;
  - finding the cost of carrying one additional bit on each of the plurality of subcarriers;
  - receiving a plurality of data signals; and
  - time averaging the plurality of data signals received thereby lowering an effective noise variance of the sub-carrier.
- [c7] The method of claim 1 further comprising compensating for channel distortion using a per-tone frequency domain equalizer.
- [c8] The method of claim 1 further comprising initializing a link.
- [c9] The method of claim 1 further comprising training a receiver.
- [c10] The method of claim 1 further comprising generating a profile of constellation size for at least one of the plurality of frequency domain data signals.

